



**ENGINEERING OPERATIONS COMMITTEE
MEETING MINUTES
JULY 7, 2005 – 9:00 A.M.
UPTRAN CONFERENCE ROOM**

Present: L. Tibbits J. Friend J. Polasek
J. W. Reincke M. VanPortFleet J. D. Culp
M. Chaput A. Clover C. Bleech
E. Burns

Absent: B. J. O'Brien T. Fudaly

Guests: B. Krom P. Corlett S. Cook
A. Uzcategui D. Calabrese (for T. Fudaly)

OLD BUSINESS

1. Approval of the Minutes of the June 5, 2005, Meeting – L. Tibbits

The minutes of the June 5, 2005, meeting were approved.

2. Recommendation on New Signal Installation – Box Span Option (See June 2, 2005, Meeting Minutes, New Business, Item 2) – J. D. Culp, M. Bott and P. Corlett

The committee approved the use of the box span signal layout as the option of first choice on any trunkline intersection being constructed or modernized. The diagonal span display will be maintained as an option when the box span display cannot be accommodated. The Traffic and Safety Support Area will develop criteria for the statewide practice and establish minimum thresholds for appropriate use.

Use of the box span signal layout will improve intersection safety, support the safety efforts of local agencies, and provide positive contribution to the department's elderly mobility initiatives.

NEW BUSINESS

1. Design-Build Contracting – J. Culp and M. VanPortFleet

The department utilized Design-Build in the late 1990s primarily as a tool to expedite the delivery of an increase to its bridge program to address declining system condition. It is desired to refresh our practice and procedures as it pertains to Design-Build so we can quickly utilize this project delivery technique when appropriate.

It is recommended that the department resume efforts to develop practice and procedures for future design-build contracts through a joint MDOT/industry task force with representatives from Design, Traffic and Safety, Construction and Technology, the regions, FHWA, and industry.

ACTION: John Friend and Jim Culp will contact ACEC and MI-ITA to request participation from them before the next meeting.

2. **Sign Support Typical Plan VIII-370E, *Steel Cantilever Type J* and Sign Support Typical Plan VIII-350E, *Drilled Shaft Foundation for Cantilever Type J* – A. Uzcategui**

It is recommended that EOC approve the use of Sign Support Typical Plan VIII-370E, *Steel Cantilever Type J*, and Sign Support Typical Plan VIII-350E, *Drilled Shaft Foundation for Cantilever Type J*. These sign support typical plans are to be used in unique circumstances where a large arm type cantilever sign support is the only variable solution at any given highway location.

ACTION: Recommendation approved.

3. **Pavement Selections – B. Krom**

A. **I-69 Reconstruction: CS 25084, JN 60478**

The reconstruction alternates considered were: Alternate 1 – a hot mix asphalt (HMA) pavement (Equivalent Uniform Annual Cost [EUAC] \$207,659/directional mile), and Alternate 2 - jointed plain concrete pavement (JPCP) (EUAC \$167,514/directional mile).

A life cycle cost analysis was performed and Alternate 2 was approved based on having the lowest EUAC. The pavement design and cost analysis are as follows:

11"	.....	Jointed Plain Concrete Pavement w/15' joint spacing (mainline)
8"	.....	Jointed Plain Concrete Pavement w/15' joint spacing (shoulders)
6.0"	.....	Open-Graded Drainage Course (mainline & 9" under shoulders)
		Geotextile Separator
24.4"	.....	Existing Sand Subbase (average thickness)
6."	.....	Open Graded Underdrain System
17.0"	.....	Total Section Thickness

Present Value Initial Construction Costs	\$966,312/directional mile
Present Value Initial User Costs	\$1,883,129/directional mile
Present Value Maintenance Costs.....	\$111,003/directional mile
Equivalent Uniform Annual Cost	\$167,514/directional mile

B. **I-69 Reconstruction: CS 25084, JN 56984**

The reconstruction alternates considered were: Alternate 1 – HMA pavement (EUAC \$130,974/directional mile), and Alternate 2 – JPCP (EUAC \$117,705/directional mile).

A life cycle cost analysis was performed and Alternate 2 was approved based on having the lowest EUAC. The pavement design and cost analysis are as follows:

11"	.....	Jointed Plain Concrete Pavement w/15' joint spacing (mainline)
8"	.....	Jointed Plain concrete Pavement w/15' joint spacing (shoulders)

6.0"	Open Graded Drainage Course (mainline & 9" under shoulders)
	Geotextile Separator
24.4"	Existing Sand Subbase (average thickness)
6"	Open-Graded Underdrain System
17.0"	Total Section Thickness

Present Value Initial Construction Costs	\$965,892/directional mile
Present Value Initial User Costs	\$1,003,282/directional mile
Present Value Maintenance Costs	\$111,003/directional mile
Equivalent Uniform Annual Costs	\$117,705/directional mile

C. US-12 Westbound Reconstruction: CS 82061, JN 60447

The reconstruction alternates considered were: Alternate 1 – HMA pavement (EUAC \$79,754/directional mile), and Alternate 2 – JPCP (EUAC \$96,855/directional mile).

A life cycle cost analysis was performed and Alternate 1 was approved based on having the lowest EUAC. The pavement design and cost analysis are as follows:

2.0"	HMA, 5E3, Top Course
2.5"	HMA, 4E3, Leveling course
3.5"	HMA, 3E3, Base Course
6.0"	Open Graded Drainage Course
	Geotextile Separator
18.0"	Sand Subbase
6" dia	Open-Graded Underdrain System
32.0"	Total Section Thickness

Present Value Initial Construction Costs	\$868,079/directional mile
Present Value Initial User Costs	\$285,127/directional mile
Present Value Maintenance Costs	\$256,267/directional mile
Equivalent Uniform Annual Costs	\$79,754/directional mile

D. M-85 Reconstruction: CS 82211, JN 72409

The reconstruction alternates considered were: Alternate 1 – HMA pavement (EUAC \$133,070/directional mile), and Alternate 2 – JPCP (EUAC \$125,678/directional mile).

A life cycle cost analysis was performed and Alternate 2 was approved based on having the lowest EUAC. The pavement design and cost analysis are as follows:

9"	Jointed Plain Concrete Pavement w/15' jt spacing
6"	Open Graded Drainage Course
	Geotextile Separator
10"	Sand Subbase
6" dia	Open-Graded Underdrain System
25"	Total Thickness

Present Value Initial Construction Costs	\$954,371/directional mile
Present Value Initial User Costs	\$1,136,823/directional mile
Present Value Maintenance Costs.....	\$129,895/directional mile
Equivalent Uniform Annual Costs.....	\$125,678/directional mile

4. **Traffic Signal Mast Arm Poles and Mast Arm – S. Cook**

The EOC requested criteria to guide and inform local agencies on associated costs and consequences relating to the use of the three possible AASHTO categories of traffic signal mast arm poles and mast arms. Steve Cook discussed the following three categories and their related importance:

- A. Category I – For use at locations with high-speeds and high traffic volumes where a collapse will have a high probability of a collision with a vehicle (designed for infinite life more than 25 years).
- B. Category II – Where traffic volume and speed conditions do not fall within the range set for Category I or III.
- C. Category III – For use at locations where there are low-speeds and low traffic volumes. Generally, the posted speed limits are equal to or less than 35 mph. ADT do not exceed 10,000 and Average Daily Truck Traffic volumes should not exceed 1,000. Typically on secondary roads or residential areas.

Steve Cook will submit the draft criteria to EOC for review and approval at the September meeting. Criteria should include cost differences between categories for initial installation, as well as inspection and maintenance costs projections for Categories II and II (inspection required once every two years).

(Signed Copy on File at C&T)

 André Clover, Acting Secretary
 Engineering Operations Committee

AC:kar

cc:	G. J. Jeff	S. Mortel	J. Steele (FHWA)
	K. Steudle	D. Jackson	R. Brenke (ACEC)
	L. Hank	W. Tansil	G. Bukoski (MITA)
	EOC Members	D. Wresinski	R. J. Risser, Jr. (MCPA)
	Region Engineers	C. Libiran	D. Hollingsworth (MCA)
	TSC Managers	R. J. Lippert, Jr.	J. Becsey (APAM)
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	T. Kratofil	T. Phillips	C. Mills (MPA)
	M. DeLong	K. Peters	J. Murner (MRPA)
	B. Kohrman	J. Ingle	G. Naeyaert (ATSSA)
	J. Shinn	C&T Staff	